QUANTA

www.quanta.org.uk

CONTENTS

Volume 24. Issue 5.
Oct/Nov 2007

Information on the Association

Membership of QUANTA, the independent QL user group, is by annual subscription. The Membership Secretary can supply full details. Copies of the association's constitution & annual accounts are available from the Secretary. There is an extensive software library. There are active national subgroups. Details are given in the Member's Guide and in this magazine.

QUANTA Committee - 2007/2008

Chairman	John Mason	73 Chewton Common Road, Highcliffe, Christchurch, BH23 5LZ
	Email: chairman@quanta.org.uk	Tel: 01425 275894
Secretary	Sarah Gilpin	181 Urmston Lane, Stretford, Manchester. M32 9EH
	Email: secretary@quanta.org.uk	Tel: 0161 865 2872
Treasurer , Membership Secretary & Missed Issues	John Gilpin	181 Urmston Lane, Stretford, Manchester. M32 9EH
	Email: treasurer@quanta.org.uk Email: membership@quanta.org.uk	Tel: 0161 865 2872
Magazine Editor		
	Email: editor@quanta.org.uk	
Librarian		
	Email: librarian@quanta.org.uk	
Helpline		
	Email: helpline@quanta.org.uk	
Web Master	Dan Abbott	All contact with Web Master by email please.
	Email: webmaster@quanta.org.uk	
Back Issues Requests	Basil Lee	31 Fairdale Gardens, London. SW15 6JW
	Email: backissues@quanta.org.uk	Tel: 0208 789 1976

QUANTA reserves the right to publish, reject or edit any material submitted. The opinions expressed are solely those of the contributors. Member's private small ads - free (up to 50 words). Non-members private small ads (and members after 50 words) 50p per 10 words or part thereof. Terms strictly paid up-front with order. Receipt if requested. All copyrights and trademarks are hereby acknowledged.

CHAIRMAN'S NOTES   John Mason

I was delighted with the QUANTA Workshop which took place at the Holiday Inn, Solihull on Saturday 6th October, and especially to be able to chat with so many members some of whom I had not seen for quite a few hours. A big thank you to all who turned out, and to the staff of Holiday Inn. I will leave Sarah to report on the workshop later in this magazine.

It is just about the mid-point of the QUANTA year, a very appropriate time to reflect on where we are and where we may or may not be going.

Membership levels continue to be affected by something called "Anno Domini". As an offset we have gained 4 new members since the start of 2007. Not a lot you say, but nevertheless encouraging.

"Pigeons" have been suggesting that the demise of QUANTA. is imminent.

I would agree that in the event of members continuing to fail to take sufficient interest in the affairs of QUANTA as to be willing to fill present and future Committee vacancies there could be some truth in such surmise.

COPY DATE for DECEMBER 2007/JANUARY 2008 ISSUE is:

5TH DECEMBER 2007

Please ensure that your copy reaches the editor on or before that date Copy on Paper or Magnetic Media or by Email.
All Contributions are Welcome.
Copy on Microdrive or Floppy Disk or CD to be accompanied by hard copy printout.
Copy by Email to - editor@quanta.org.uk

Quanta Magazine

Committee now has 4 members - the smallest it has been since the first two years of the Association – even so this year Dan Abbott has joined Committee as Web Master – greatly improving our communications ability as the new website so clearly shows

During the past two years, two long serving Committee members have retired and both decided to stand down from Committee

Despite repeated invitations we have yet to find replacements for them.

There is urgent need to find :–

1.   A Librarian/Software Controller to produce (a) an Archive of the earlier programs, (b) a Library of programs that run on today's machines, and (c) monitor and add new programs being written as the QL continues to be developed.

2.   A Helpline member whose remit, beyond responding to members enquiries, could encompass developing a "Hints and Tips" feature in the magazine and keeping members abreast of progress with all developments of the QL as they arise.

3.   An Editor to relieve the workload of John Gilpin who kindly took on this task in addition to the duties of Treasurer and Membership Secretary so as to ensure that you could continue to get a regular magazine.

The present Constitution provides for Committee to be regularly renewed and refreshed by limiting the length of time that both Officers and Ordinary Committee Members can serve continuously without standing down for at least one year.

The effect of this provision is that beginning with the Annual General Meeting in 2009, and continuing with the AGMs in 2010 and 2011 one by one each of the present three officers will reach the prescribed limit of his/her service and have to stand down for at least one year.

To ensure that QUANTA can continue to meet its Members needs it is essential that Members come forward to serve on Committee and fill the present Ordinary Committee Member vacancies so that there are people with

sufficient experience of QUANTA Committee to be able to fill adequately the vacancies for Chairman, Secretary, and Treasurer as and when they arise.

Question:- **What does serving on committee entail?**
Answer:-

1. On average 1 to 2 hours per week performing Committee duties you have agreed to undertake.

2. Attendance at "Face to Face" committees three times per year viz. Immediately after the AGM, Mid year, and Preparation for the next AGM. The last two are held at a location equidistant from the homes of all committee members.

3. Occasional attendance at "Face to Face" committees held at Workshops should the need arise.

4. Participating in committees conducted by "Email" between "FACE to Face" committees.

5. Occasional attendance at and manning the QUANTA table at Workshops when asked.

Question:- **Will I be paid expenses?**
Answer:-

Committee members may claim for expenses wholly and necessarily incurred in the performance of their duties

YOUR QUANTA NEEDS YOU!

Will You Give Back some of that which QUANTA has given You?

WILL YOU RESPOND TO THE CHALLENGE?

John Mason

There have been no face to face meetings of Committee since April. However, there have been two email meetings, both in August.

The first was regarding the Publication Database of dwpub.com. They requested a confirmation of correct information before adding QUANTA to their database. Committee agreed that as this was free, any publicity would be welcome and useful. Therefore the information requested was forwarded for entry into the database.

The second was regarding the proposed workshop to be held in Birmingham. There appeared to be some confusion as to what was required for a suitable venue to host a workshop. The West Midlands subgroup had offered to host the AGM in April 2007, but their application was received too late. With their offer in mind, Committee asked the subgroup to host a workshop in September/October. A member attending a West Midlands subgroup meeting reported to Committee the limitations of the proposed venue for a workshop and immediate steps were taken to try and find a more suitable venue.

A number of alternatives were suggested both by Committee and the West Midlands subgroup and it was decided that the Holiday Inn, Solihull should be used. Committee felt that the workshop should be used to assess the viability of a Midlands venue for the envisaged 25th Celebration workshop in 2009. (I am aware that no name has yet been selected for this "do". **Has anyone any suggestions?**)

After the workshop, Committee held a short meeting. The Treasurer confirmed that QUANTA had terminated their contract with the former magazine printers in writing. A financial update was provided and a decision made to write down the remaining 'QL is 21' T shirts (any member who would like one for **ONLY £1.99 inc UK p & p**, please contact John Gilpin). A general update was given on the website and the review of the Constitution, further discussion to be held at the February meeting. The most important outcome of the meeting was that all felt that Solihull could make an excellent venue for the 2009 celebrations, it is close to Birmingham Airport (6 miles), there is easy access by road and public transport and it is not as expensive as the centre of a major city. It was agreed that some alternative hotels/conference facilities should be asked for quotations before any decision was reached, but that this should be acted upon with some urgency.

Quanta Magazine
Annual General Meeting 2008

Notice No. 1

QUANTA invites bids to hold the Annual General Meeting 2008 either on the weekend of April 12th/13th 2008 or on the weekend of April 26th/27th 2008 at a Venue in the Northern half of United Kingdom.

Any Sub Group/Member wishing to host the AGM should notify the Secretary by or before 28th November 2007

Notice No. 2

Nominations are invited for Ordinary Members of Committee. The posts of Librarian, Editor, Helpline and Webmaster will be drawn from the Ordinary members of Committee.

You are reminded of the Constitution clauses that refer to the nominations for election to Committee and Special Resolutions:-

5.1 Any member seeking election to the Committee shall declare any Commercial interest that he or his employer has in the activities of QUANTA or its members.

8.3 All nominations for Committee posts and any proposition to be put at an Annual General Meeting other than the Ordinary Business stated in 8.1 shall be signed by the intending proposer and seconder and sent to the Secretary and be received before 1st February in each year so that it can be circulated with the notice convening the meeting.

8.4 Any proposition to change the Constitution shall be by Special Resolution. A Special Resolution requires to be sent with the notice convening a General Meeting giving twenty one day's notice and requiring a two-thirds majority of those voting.

Committee meets face to face three times a year, either at a Workshop or at an agreed venue approximately equidistant from participating Committee members. All other business is conducted by email.

Sarah Gilpin   Secretary.   10th October 2007

QPC

Having wired up to a COM port (I had previously installed a board in my PC to give me two extra COM ports) I used Hyperterminal in Windows to look for the data and find out the number of the port in use. It was quite a relief and thrill to see the data pouring out of the circuit, and I found that the port was number 6. It had been far easier than I expected. Up to now.

But how could I get the display? I must admit that up to this point I hadn't thought about QPC, in fact I first tried in Linux and C, but then I remembered that SuperBASIC is very good at both mathematics and graphics, and decided to give it a go.

The next hurdle was accessing the serial port in SB. I found the documentation (13)(14) confusing, with its talk of "device" and "SER port" and numbers that could refer to Windows or QPC. Quite likely this has been explained somewhere in QLToday or Quanta already, but that would have taken a lot of locating, so I used my tried and trusted "poke it with a stick until it squeaks" technique on SER_GETPORT$, SER_SETPORT, BAUD and FOPEN parameters, until it all boiled
down to this, (with arbitrary line numbers):-

140 SerPort%= 6: REMark I put this, the Windows COM port number, near the start of ..

150   REMark .. the program to change to SerPort%= 1 for the laptop version.
...

810 SerPort$= SerPort%: REMark Necessary for the FOPEN parameter string

820 BAUD SerPort%,4800: REMark "820 BAUD SerPort$,4800" does not always work

830 cs%= FOPEN("srx"&SerPort$&"IA")

For FOPEN, the parameters are a string made up of: "srx", a "receive only" serial port name; "SerPort$", the Windows COM port number

as a string -- "SerPort%" will not work here as it doesn't get converted to part of the string; I is "ignore flow control" -- well, it works, whatever it means; and A is for the <CR><LF> at the end of each line.

I had this in a short SB program to work it out, and it was once again a thrill when the data came tumbling on to the screen. From then on it was just a matter of developing the program to the full version here.

The program, figure 11.

```
100 :
110 REMark Set ShowTrack% to 0 for orbits, 1 for track
120 ShowTrack%= 1
130 REMark For orbits: set Blobs% to 1 for blobs, 0 for lines
140 Blobs%= 1
150 :
160 CLOSE: INK 0: REMark just in case
170 REMark Serial Port: 6 for PC, 1 for Laptop
180 SerPort%= 6
190 maxid= 30: REMark highest permitted satellite id no.
200 :
210 IF ShowTrack% >0 THEN
220   Minlon=0: Minlat=0: Maxlon=0: Maxlat=0
230   REMark PRINT Minlon,Minlat,Maxlon,Maxlon
240   REMark For displaying track must set min and max
250   REMark   lat and lon or call a procedure to do so ...
260   REMark ChiCityMap
270   PfdMap
280   :
290   REMark See Jan Jones page 39, 40
300   IF (1+ Minlon+ Minlat+ Maxlon+ Maxlat)= 1 THEN
310     CLS: PRINT \\\"   *** Map limits not set ***": STOP
320   END IF
330 END IF
340 :
350 COLOUR_PAL
360 REMark For orbit display:
370 REMark Colours used for spot showing first observed
380 REMark position and use of satellite
390 seentint%= 194: usdtint%= 96
400 :
410 REMark *********************************
420 sim= 1: REMark Set to 0 for receiver input
430 REMark          1 for file input
```

```
440 REMark Set dtof to 1 to save raw data to win1_sats_data
450 dtof= 0
460 REMark No point in saving already saved data!
470 IF sim <> 0 THEN dtof = 0
480 REMark *********************************
490 :
500 CLS#0: CLS
510 CSIZE 0,0
520 :
530 REMark Set up the Serial Port if needed
540 IF sim THEN
550   REMark Serial Port simulated by data file
560   cs%= FOP_IN("win1_gps_sats_dat")
570 :
580 ELSE
590   REMark For real time data from receiver
600   REMark SerPort% set to 6 or 1 at start of program
610   BAUD SerPort%,4800: SerPort$= SerPort%
620   cs%= FOPEN("srx"&SerPort$&"IA")
630 END IF
640 :
650 REMark Window to display raw data
660 dd%= FOPEN ("con")
670 WINDOW #dd%,550,75,0,525: BORDER #dd%,1,9,1
680 PAPER #dd%,36: INK #dd%,0: CLS #dd%
690 :
700 REMark Window to display error and other messages
710 REMark in particular, corrupted data
720 de%= FOPEN ("con")
730 WINDOW #de%,400,75,400,45: BORDER #de%,1,9,1
740 PAPER #de%,39: INK #de%,0: CLS #de%: REMark paper was 36
750 :
760 REMark Delay in seconds between readings
770 REMark to avoid enormous sats_data file
780 INPUT "Delay in seconds",delay
790 :
800 REMark Window for main display of orbits or track
810 asprat= .8: REMark aspect ratio: width/height
820 size = 3.5: REMark for early fiddling with windows
830 dc%= FOPEN ("con")
840 Mctr= COS(RAD((Minlat+Maxlat)/2))
850 High= 100*size: Wide= 137*size*asprat
860 WINDOW #dc%,Wide,High,0,525-High
870 BORDER #dc%,1,9,1: INK #dc%,0: PAPER #dc%,37: CLS #dc%
```

```
880 :
890  REMark
     ========================================================
900 REMark Set up for track display
910 IF ShowTrack% <>0 THEN
920   difflon= Maxlon- Minlon: difflat= Maxlat- Minlat
930   SCALE #dc%,difflat,Minlon*asprat*Mctr, Minlat
940   :
950   REMark Lat and Lon grid
960   LatLonGrid
970   :
980   REMark window to show instantaneous track and speed
990   dt%= FOPEN ("scr")
1000   Topdc%= 525-High+3
1010   WINDOW #dt%,137/4*size*asprat,100/4*size,285,Topdc%:
1020   BORDER #dt%,1,9,1: SCALE #dt%,200,-100*asprat,-100
1030   PAPER #dt%,37: CLS #dt%:
1040  ELSE
1050   REMark For orbit display
1060   SCALE #dc%,2.2,-1.1*asprat,-1.1
1070   REMark Set up alternative for orbits
1080   SatSky
1090 END IF
1100  REMark
     ================================================
1110 :
1120 REMark Open a file to collect the data for simulation
1130 IF dtof <> 0 THEN fc%= FOP_NEW(win1_sats_data)
1140 :
1150 REMark ::::::::::::::::::::::::::::::::::::::::::
1160 REMark This was originally the only display, put DEF PROC
1170 REMark round it to allow alternative track display
1180 REMark Window #dc% already defined as same size for both
1190 DEFine PROCedure SatSky
1200   REMark Sky disk
1210   FILL #dc%,1: INK #dc%,29
1220   ELLIPSE #dc%,0,0,1,1*asprat,0
1230   FILL #dc%,0
1240   :
1250   REMark Draw polar plot grid lines
1260   INK #dc%,12: radials : REMark draw the bearings
1270   REMark now draw the elevations
1280   FOR i= 1 TO 3:  ELLIPSE#dc%,0,0,i/3,1*asprat,0
1290   REMark North-South and East_west solid lines
```

```
1300   LINE#dc%,-1.02*asprat,0 TO 1.02*asprat,0
1310   LINE#dc%,0,-1.02 TO 0,1.02
1320   :
1330   REMark Mark points of compass
1340   INK#dc%,9
1350   CURSOR#dc%,1.03*asprat,0,0,-4: PRINT #dc%,"E"
1360   CURSOR#dc%,-1.03*asprat,0,-6,-4: PRINT #dc%,"W"
1370   CURSOR#dc%,0,1.04,-3,-8: PRINT #dc%,"N"
1380   CURSOR#dc%,0,-1.03,-3,2: PRINT #dc%,"S"
1390   :
1400   REMark Mark azimuth scale
1410   FOR i= 30 TO 330 STEP 30
1420    IF (i MOD 90) = 0 THEN NEXT i
1430    j= i+90
1440     CURSOR#dc%,1.03*COS(j*PI/180)*asprat,1.03*SIN
(j*PI/180),-6,-5
1450     PRINT#dc%,360-i
1460   END FOR i
1470   :
1480   REMark mark elevation scale
1490   FOR i= 0 TO 3: CURSOR#dc%,0,i/3,-6,-5: PRINT #dc%,90-30*i
1500 END DEFine SatSky
1510 :
1520
REMark ::::::::::::::::::::::::::::::::::::::::::::::
1530 :
1540 REMark Display set up, now get ready for GPS data
1550 :
1560 REMark Array to store raw data lines from receiver
1570 DIM rawdata$(5,128)
1580 REMark Array to store satellite data ..
1590 REMark with:  IdNo, Bearing, Elevation, Usage
1600 REMark where: Usage is 0 for not used, 1 for used.
1610 DIM satsvis(11,3) : REMark Allow for 12 satellites in view
1620 :
1630 DIM satsusd(11)   : REMark List of Ids of  satellites used.
1640 :
1650 REMark I use copies of the raw data ...
1660 DIM satlist$(6,128):REMark Satellite data from $GPSGV input
1670 REMark Allow for 7 $GPSV lines (OTT -- never more than 2!)
1680 :
1690 DIM rmcdata$(128) : REMark for Lat, Long, Time
1700 :
1710 REMark Posns for orbits plotted as lines
```

```
1720 REMark to draw a blob for first point, then a line
1730 REMark Store: Old x,y; New x,y: 5th item, 0= new orbit ..
1740 REMark .. so draw a blob, 1= orbit started so draw line
1750 DIM posns(maxid,5): REMark need enough for each satellite
1760 REMark set all to zero for a start
1770 FOR i%= 0 TO maxid-1
1780   FOR j%= 0 TO 4: posns(i%,j%)= 0
1790 END FOR i%
1800 :
1810 CLS
1820 REMark For plotting track, need a POINT to start
1830 REMark then continue with lines.
1840 REMark Don't bother not defining this if orbits
1850 FirstPt%=0
1860 :
1870 lines=0:     REMark A count of input lines
1880 GoodLines=0: REMark Another count of input lines
1890 CLS #dd%: REMark I needed this for raw data display
1900 :
1910  REMark
===========================================================
1920 REMark Setting up complete, now for ...
1930 REMark ... data reading and display
1940 :
1950 REMark Repeat loop for continuous display
1960 REMark delay at end
1970 REMark Each run through loop deals with a single set
1980 REMark of data sentences, five in my case, starting
1990 REMark with a $GPGGA. Sent each second, but read
2000 REMark at a rate determined by missing some with the delay
2010 REMark Test for end in gpsdata$ function
2020 :
2030 REPeat orbits
2040   AT #dd%,0,0: AT 0,0: REMark To keep the display tidy
2050   REMark I read all the sentences at one go so that I
2060   REMark don't end up with some from a later second's lot.
2070   rawdata$(0)= gpsdata$("$GPGGA"): REMark Wait for a first
2080   rawdata$(1)= gpsdata$("$GPGSA"): REMark ... read the rest
2090   rawdata$(2)= gpsdata$("$GPGSV")
2100   rawdata$(3)= gpsdata$("$GPGSV")
2110   rawdata$(4)= gpsdata$("$GPRMC")
2120   lines= lines+5: REMark lines, GoodLines  bit messy ...
2130   REMark ... intended it to help look at corrupted data
2140   REMark Check lines for not corrupted data
```

```
2150  FOR i= 0 TO 4
2160     REMark Go through data to look for corrupted lines.
2170     REMark This became a long winded process, so that is
2180     REMark why I read all the sentences in one go.
2190     REMark Ignoring the whole set of data if there is only
2200     REMark one corrupted item ,is a bit OTT, but safe.
2210     :
2220     REMark Sometimes get lines much longer than spec. ..
2230     REMark .. 'Long' lines seem to be a normal line but ..
2240     REMark .. no <CR><LF> and followed by more, ..
2250     REMark  .. badly formed, data, so ignore them:
2260     ChkFld%= '*' INSTR rawdata$(i)
2270     IF LEN(rawdata$(i)) > ChkFld%+ 3 THEN NEXT orbits
2280     :
2290     IF dtof <> 0 THEN
2300       PRINT #fc%,rawdata$(i): REMark Save in file if needed
2310     END IF
2320     :
2330     REMark Check 'Checksum' field
2340     IF CheckSum(rawdata$(i)) <> 0 THEN NEXT orbits
2350     GoodLines= GoodLines+1
2360     DisLine dd%,GoodLines&" "&rawdata$(i),0
2370  END FOR i
2380 :
2390 REMark Get ready for list of satellites used
2400 REMark from $GPGSA data line
2410 gpsAdata$ = rawdata$(1): REMark cautiously use copies
2420 :
2430 REMark Get ready for list of satellite data
2440 REMark First $GPGSV line gives no of $GPSV lines
2450 satlist$(1) = rawdata$(2)
2460 REMark Extract number of $GPGSV lines
2470 novrecs% = satlist$(1,8)
2480 :
2490 REMark Get rest of $GPGSV lines
2500 REMark FOR j= 2 to novrecs%
2510 REMark  satlist$(j)= gpsdata$("GPGSV")
2520 REMark END FOR
2530 REMark Had trouble with that so .. assumed always two ...
2540 satlist$(2)= rawdata$ (3)
2550 :
2560 REMark Get RMC data
2570 REMark Too late now, but should use a copy of raw data!
2580 gpsrmc$= gpsdata$ ( "$GPRMC")
```

```
2590 :
2600 REMark Start at first $GPGSV line
2610 t$= satlist$(1): REMark To leave full data for later
2620 f$= field$(chop$(t$,3))
2630 REMark NumChk didn't work, don't know why ....
2640 REMark IF NumChk(f$)<>0 THEN NEXT orbits
2650 novsats%= f$
2660 :
2670 REMark Now have all the data needed for display
2680 :
2690 REMark Extract satellites used into satsusd array
2700 REMark from $GPGGA line
2710 v$= chop$(gpsAdata$,2)
2720 i= 0: REMark Count for sused REPeat loop
2730 PRINT \" Sats used   : ";
2740 :
2750 REMark Extract time and validity
2760 UTC$= GPSTime$(rawdata$(4))
2770 Inv%= 0: REMark to record invalid time and data
2780 IF gpsrmc$(18)= "V": Inv%=1
2790 :
2800 REPeat sused
2810   v$= chop$(gpsAdata$,1)
2820   REMark Mark end of list with -1
2830   IF v$(1)="," THEN satsusd(i)= -1: EXIT sused
2840   REMark f$= field$(v$)
2850   f$= field$(v$): IF LEN(f$) =0 THEN NEXT orbits
2860   satsusd(i)= f$: IF satsusd(i)<10 THEN PRINT "0";
2870   PRINT satsusd(i);" ";: i= i+1
2880 END REPeat sused
2890 :
2900 REMark Spaces at end of 'used' line for shorter overwrite
2910 PRINT "      "
2920 :
2930 PRINT " Sats in view: ";
2940 :
2950 REMark Extract data from $GPGSV lines
2960 v$= satlist$(1)
2970 v$= chop$(v$, 2)
2980 FOR i= 1 TO novsats%
2990   v$= chop$(v$, 2)
3000   id$= field$( v$ ): REMark Satellite Identifier
3010   IF LEN(id$) =0 THEN NEXT orbits
3020   id%= id$: IF id%<10 THEN PRINT "0";
```

```
3030   PRINT id%!;
3040   v$= chop$ ( v$, 1 ): REMark Satellite elevation
3050   el$= field$( v$ )
3060   IF LEN(el$) =0 THEN NEXT orbits
3070   el%= el$
3080   v$= chop$ ( v$, 1 ): REMark Satellite azimuth
3090   az$= field$( v$ )
3100   IF LEN(el$) =0 THEN NEXT orbits
3110   IF NumChk(az$)<>0 THEN NEXT orbits
3120   az%= az$
3130   j= 0: tint%= seentint%
3140   REPeat chkid
3150     IF satsusd(j)= -1 THEN EXIT chkid
3160     IF satsusd(j)= id% THEN tint%= usdtint%
3170     j= j+1
3180   END REPeat chkid
3190   :
3200   IF ShowTrack% =0 THEN
3210     REMark At last can plot satellite in position
3220     REMark Plot only valid data
3230     IF Inv%=0 THEN : spot el%, az%, id%, tint%
3240   END IF
3250   REMark Change data line after 4 sats
3260   IF (i MOD 4)= 0 THEN v$= chop$(satlist$(2),2)
3270 END FOR i
3280 :
3290 REMark Spaces at end of 'ids' line for shorter overwrite
3300 PRINT "      "
3310 :
3320 REMark Print validity
3330 PRINT \"   ";
3340 IF Inv%=1: PRINT "Inv";: ELSE PRINT "V";
3350 PRINT "alid Position  "
3360 REMark Spaces to overwrite longer 'Invalid' message
3370 :
3380 REMark Extract Lat and Long
3390 REMark Chopped gpsrmc$ also used by Track code
3400 REMark so I use a variable to synchronise
3410 rmchop%= 3
3420 gpsrmc$= chop$(gpsrmc$, rmchop%)
3430 CSIZE 3,1: AT 3,0
3440 REMark Latitude
3450 PRINT " ";gpsrmc$( 1 TO 2); CHR$(186);
3460 PRINT " ";gpsrmc$(3 TO 10);"""!gpsrmc$(12);
```

```
3470 LatDeg$= gpsrmc$( 1 TO 2)
3480 LatMin$= gpsrmc$(3 TO 10)
3490 Lat= DecDeg(LatDeg$,LatMin$)
3500 IF gpsrmc$(12) =="S" THEN Lat= -Lat
3510 REMark Validity
3520 PRINT " "; Validity$
3530 REMark Longitude
3540 PRINT " ";gpsrmc$(14 TO 16); CHR$(186);
3550 PRINT " ";gpsrmc$(17 TO 24);""! gpsrmc$(26)
3560 LonDeg$= gpsrmc$(14 TO 16)
3570 LonMin$= gpsrmc$(17 TO 24)
3580 Lon= DecDeg(LonDeg$,LonMin$)
3590 IF gpsrmc$(26)== "W" THEN Lon= -Lon
3600 :
3610 REMark Display UTC, extracted way back
3620 AT 6,2: PRINT UTC$;
3630 :
3640 REMark Extract Track data,
3650 REMark   gprsmc$ already chopped for Lat, Long
3660 AT 8,2
3670 trak$= gpsrmc$: trak$= chop$(trak$, 7-rmchop%)
3680 speed$= trak$(1 TO 5)
3690 IF NumChk(speed$)<>0 THEN CSIZE 0,0: NEXT orbits
3700 Speed= speed$* 1.150779: REMark Convert Knots to m.p.h.
3710 PRINT "Track"!trak$(7 TO 11);CHR$(186): REMark Bearing
3720 PRINT_USING "    at ##.# m.p.h", Speed
3730 Brg= trak$(7 TO 11)
3740 :
3750 CSIZE 0,0
3760 :
3770 IF ShowTrack% THEN
3780   REMark Show track as a line: colour shows speed
3790   INK #dc%,Spink%(Speed)
3800   IF FirstPt%==0 THEN
3810     POINT #dc%, Lon*asprat*Mctr, Lat: FirstPt%= 1
3820     ELSE   LINE #dc% TO Lon*asprat*Mctr, Lat
3830   END IF
3840 :
3850   REMark Show Speed and bearing as a line, ..
3860   REMark .. length and colour for speed, ..
3870   REMark .. bearing as direction of line.
3880   CLS #dt%: INK #dt%,Spink%(Speed)
3890   POINT #dt%,0,0: PENDOWN #dt%
3900   TURNTO #dt%,90-Brg: MOVE #dt%,Speed: PENUP #dt%
```

```
3910 END IF
3920 :
3930 REMark Pause to slow down rate of refreshment of display
3940 PAUSE 50*delay
3950 :
3960 REMark End of repeat loop for continuous display
3970 END REPeat orbits
3980 CLOSE #cs%: IF dtof <>0 THEN CLOSE #dc%
3990 STOP
4000 :
4010  REMark  End  of  Main  Program
      ================================
4020 :
4030 DEFine PROCedure radials
4040   REMark Draws the celestial meridians at 30 deg intervals
4050   REMark as a series of dots to avoid too dark a line
4060   LOCal i,j,interval
4070   interval = 2E-2
4080   FOR i = 0 TO 350 STEP 10
4090     FOR j= 2 TO 100
4100       REMark uses j*interval as a radial distance ..
4110       REMark .. which must be converted to x,y for plot
4120       IF j*interval > 1 THEN EXIT j
4130       POINT#dc%,j*interval*COS(i*PI/180) *asprat,j*interval*SIN(i*PI/180)
4140     END FOR j
4150   END FOR i
4160 END DEFine
4170 :
4180 DEFine PROCedure spot(elvn,azm,id,tint)
4190 REMark Draw a blob in tint at elvn,azm and show id
4200 REMark For a polar plot need to convert to x,y coords
4210 REMark Code for line plot added later
4220 LOCal x,y,srad
4230 REMark ignore data if id outside possible range ..
4240 REMark .. it has happened, usually during start up of RX
4250 IF id > maxid THEN RETurn
4260 srad= (90-elvn)/90: REMark zero to one on plot
4270 x= srad*SIN(azm*PI/180)*asprat
4280 y= srad*COS(azm*PI/180)
4290 REMark Copy previous posn as 'old'
4300 posns(id,0)= posns(id,2): posns(id,1)= posns(id,3)
4310 REMark Save new posn for 'old' next time
4320 posns(id,2)= x: posns(id,3)= y
4330 INK #dc%,tint: STRIP #dc%,tint
```

```
4340 REMark Draw sat as blob if first time plotted ...
4350 IF posns(id,4)< 1 OR Blobs% =1 THEN
4360   posns(id,4)= 1: REMark Remember as blobbed
4370   REMark draw a blob
4380   FILL #dc%,1: ELLIPSE#dc%,x,y,6E-2,asprat,0: FILL #dc%,0
4390   REMark Show sat id in contrasting ink
4400   IF tint= seentint% THEN INK #dc%,0: ELSE INK #dc%,7
4410   CURSOR#dc%,x,y,-6,-5
4420   IF id<10 THEN PRINT#dc%,0;: REMark Add leading zero?
4430   PRINT#dc%,id: REMark At last, print sat id
4440 ELSE
4450 REMark ... otherwise draw a line
4460     INK  #dc%,tint:  LINE  #dc%,posns(id,0),posns(id,1)  TO
posns(id,2),posns(id,3): INK #dc%,0
4470 END IF
4480 END DEFine
4490 :
4500 DEFine FuNction gpsdata$( id$ )
4510   REMark Waits for and reads a sentence of data starting
4520   REMark with the string id$ (not sat id this time)
4530   REMark Give up if there's no data to serial port
4540   FOR i= 1 TO 50
4550    IF EOF(#cs%) THEN
4560      AT 20,3: PRINT "Lines: ";lines!;
4570          PRINT " Good lines: ";GoodLines
4580          INPUT "  Press <enter> to finish: ";t$
4590      CLS: CLS#0: CLS#2: CLOSE: STOP
4600    END IF
4610    INPUT #cs%,t$
4620    REMark More checks for dodgy data
4630    IF LEN(t$) = 0 THEN NEXT i
4640    IF t$(1) <> "$" THEN NEXT i
4650    IF t$(1 TO 6) = id$ THEN RETurn t$:
4660   END FOR
4670   IF i > 10 THEN PRINT " No GPS data": STOP
4680 END DEFine
4690 :
4700 DEFine FuNction field$(str$)
4710   REMark Extracts the first field from the NMEA message data
4720   REMark after it has been chopped to the start of the
4730   REMark field, with comma separated fields, so making
4740   REMark no assumption about the field length.
4750   LOCal k%
4760   REMark last field terminated by * at start of checksum
```

```
4770   REMark so need to check for ',' -- if none then '*'
4780   k%= "," INSTR str$: IF k% =0 THEN k%= "*" INSTR str$
4790   RETurn str$ ( TO (k%-1))
4800   REMark NOTE errors such as empty string must be
4810   REMark dealt with on return from call
4820 END DEFine
4830 :
4840 DEFine FuNction NumChk(a$)
4850 REMark Check if a$ contains a decimal number, fixed point
4860 REMark Return: 0= ok; 1= empty; 2= >1 d.ps; 3= non- numeric
4870   LOCal i%,a%,NoDecPts%: NoDecPts%= 0
4880   REMark NoDecPts% holds the number of dec pts found
4890   IF LEN(a$) = 0 THEN RETurn 1
4900   FOR i% = 1 TO LEN(a$)
4910    a%= CODE (a$(i%))
4920    REMark 48 and 57 are codes for '0' and '9'
4930    REMark .. I just like < more than <=
4940    IF a% > 47 AND a < 58 THEN
4950      NEXT i%
4960     ELSE
4970      REMark Check for dec pt
4980      IF a%=46 THEN
4990       NoDecPts%= NoDecPts%+1: REMark Allow one dec. pt.
5000       IF NoDecPts%> 1 THEN RETurn 2: ELSE NEXT i%
5010      END IF
5020      RETurn 3
5030     END IF
5040   END FOR i%
5050   RETurn 0
5060 END DEFine
5070 :
5080 DEFine FuNction chop$(str$, skip)
5090   REMark Chops off skip fields from the start of str$
5100   REMark Haven't had to chop as far as the '*' yet
5110   LOCal i,j
5120   IF ( skip < 1 ) THEN RETurn str$
5130   FOR i= 1 TO skip
5140     j= "," INSTR str$: str$ = str$ ( j+1 TO )
5150   END FOR : RETurn str$
5160 END DEFine
5170 :
5180 DEFine PROCedure DisLine(c%,t$,l%)
5190   REMark Displays line padded to l% chars with spaces ..
5200   REMark .. in channel #c%, the spaces are needed
```

```
5210  REMark when short lines follow long
5220  REMark Had no success with CLS so far
5230  PRINT #c%;t$;
5240  tl%= LEN(t$)
5250  IF tl%< l% THEN
5260    PRINT #c%;FILL$(" ",l%-tl%)
5270    ELSE PRINT #c%
5280  END IF
5290 END DEFine
5300 :
5310 DEFine FuNction GPSTime$(t$)
5320  REMark Extracts time from t$ -- copy of RMC input
5330  REMark Should have used chop$ etc, but by this time the
5340  REMark data format seemed stable enough and CBB took over.
5350  t$= chop$(t$,1): REMark Remove '$GPRMC'
5360  RETurn '@ '&t$(1 TO 2)&':'&t$(3 TO 4)&':'&t$(5 TO 6)&' UTC'
5370 END DEFine GPSTime$
5380 :
5390 DEFine FuNction CheckSum(a$)
5400 LOCal i,aa$,ChkSum,ChkCode$
5410 IF LEN(a$)=0 THEN RETurn -2
5420 FOR i= 1 TO 256: REMark Allow for sentence ..
5430  REMark     .. not terminated properly, i.e. no '*'
5440  aa$= a$(i)
5450  SELect ON CODE(aa$)
5460    REMark set ChkSum to zeros at start of sentence
5470   = CODE('$'): ChkSum= 0
5480   = CODE('*'): ChkCode$= a$((i+1) TO (i+2)): EXIT i
5490   = REMAINDER :
5500     REMark ^^ is 'bit-wise exclusive OR' Jan Jones p 40
5510     ChkSum= CODE(aa$) ^^ ChkSum
5520  END SELect
5530 END FOR i
5540 REMark Checksum in data is two hex chars (8 bits)
5550 IF HEX$(ChkSum,8) = ChkCode$ THEN
5560   RETurn 0: REMark Good result
5570  ELSE
5580   REMark Bad result
5590     PRINT #de%,a$;" ChkSum: ";HEX$(ChkSum,8);" Check code:
";ChkCode$
5600   RETurn -1
5610 END IF
5620 END DEFine
5630 :
```

```
5640 REMark Follow a series of definitions of charts for tracks
5650 REMark Maxlon necessary for lat, lon grid
5660 DEFine PROCedure ChiCityMap
5670   Minlat= 50+49/60: Maxlat= 50+51/60
5680   Minlon= -47/60: Maxlon= -43/60
5690 END DEFine
5700 :
5710 DEFine PROCedure PfdMap
5720   Minlat= 50.7667: Maxlat= 51.05
5730   Minlon= -1-3/60: Maxlon= -.6
5740 END DEFine
5750 :
5760 DEFine FuNction DecDeg(D$,M$)
5770  IF LEN(D$)==0 OR LEN(M$)==0 THEN RETurn 361
5780  IF ',' INSTR(D$&M$) THEN RETurn 362
5790  RETurn D$+(M$/60)
5800 END DEFine
5810 :
5820 DEFine FuNction Spink%(S)
5830   REMark Returns a colour according to the Speed S
5840   SELect ON S
5850    ON S=0  TO  9.999: RETurn 0   : REMark Black
5860    ON S=10 TO 19.999: RETurn 5  : REMark Brown
5870    ON S=20 TO 29.999: RETurn 2   : REMark Red
5880    ON S=30 TO 39.999: RETurn 22  : REMark Yellow
5890    ON S=40 TO 49.999: RETurn 236 : REMark Orange
5900    ON S=50 TO 59.999: RETurn 3   : REMark Green
5910    ON S=60 TO 69.999: RETurn 25  : REMark Blue
5920    ON S=70 TO 79.999: RETurn 26  : REMark Violet
5930    REMark Shocking pink for over 80 m.p.h.
5940    ON S= REMAINDER : RETurn 112
5950   END SELect
5960 END DEFine
5970 :
5980 DEFine PROCedure LatLonGrid
5990 REMark For track, prints a grid of lats and longs ..
6000 REMark .. each at one minute of arc intervals
6010 REMark parameters set in main program
6020 REMark No need for precise match to window as SB
6030 REMark just doesn't draw outside it
6040 LOCal Glat, Glon, Gld, Glm
6050 INK #dc%,13: REMark nice pale grey
6060 :
6070 REMark Start with latitudes
```

```
6080 Gl= Minlat
6090 REMark Need to convert to decimal degrees
6100 Gl= INT(Gl)+(INT((Gl-INT(Gl))*60))/60
6110 Gminl= Minlon*asprat*Mctr: Gmaxl= Maxlon*asprat*Mctr
6120 REPeat LatLines
6130   IF Minlat<=Gl AND Maxlat > Gl THEN
6140     LINE #dc%, Gminl,Gl TO Gmaxl,Gl
6150   END IF
6160   Gl= Gl+1/60: IF Gl> Maxlat THEN EXIT LatLines
6170 END REPeat
6180 :
6190 REMark next meridians
6200 Gl= Minlon: Gl= INT(Gl)+(INT((Gl-INT(Gl))*60))/60
6210 Gminl= Minlon: Gmaxl= Maxlon
6220 REPeat LonLines
6230   IF Minlon <= Gl AND Maxlon > Gl THEN
6240     Gp= Gl*asprat*Mctr
6250     LINE #dc%, Gp,Minlat TO Gp,Maxlat
6260   END IF
6270   Gl= Gl+1/60: IF Gl> Maxlon THEN EXIT LonLines
6280 END REPeat
6290 END DEFine
6300 :
6310 REMark My programs always have this procedure at the end
6320 DEFine PROCedure backup
6330   SAVE dos1_GPSTalk_QLMags_Figure11.txt
6340 END DEFine
```

End of Listing

[To save you typing all that code into your machine, QUANTA will be making it available to you via the QUANTA Software Library - enquiries to:-

Librarian@quanta.org.uk - *Ed]*

        Ideally the program would be a paradigm of nice structuring, with all functions and procedures following the main part. What I've got is the messy result of developing it in stages as I discovered what could be done, first to show orbits, then putting 'DEF PROC' round that part, keeping the common channel definitions, display of satellite ids, lat, lon, time etc. and then adding the code to display the track as an alternative, with yet more additions to get line plots of orbits. Whenever I try to tidy it up (e.g. I just realised I could

usefully use CLS in some places) I introduce more errors, so I present it as it is -- IWSWFI.

I hope that the REMarks, and the pictures of the resulting displays, will make it all clear.

In simulation mode the program always takes its data from the file win1_gps_sats_data, and correspondingly stores data in the same file, so I keep backup copies of the original data files and copy the one I want to display. I use variables, Laptop%, ShowTrack%, Blobs, sim and dtof, to pick out what it is to do, using ED to change them. The REMarks in the early lines of the program explain what they are for, I could put in queries, INPUTs, validity tests, and defaults, but that comes under CBB; sorry.

There was a lot of REMark lines left over from error tracing, I keep needing them still, but I've deleted them from figure 11 to keep it a bit shorter.

Orbits

I wanted a circular sky picture, but the raw x and y values gave an ellipse. I use "asprat" (aspect ratio) to adjust the x values to get circles, with the value fixed by experiment until it looked right. I tried "G_RATIO 1" but that too gave a slight ellipse, most likely because I don't know how to use it properly. You may, of course, have to adjust asprat for your display.

For the orbits, the view is as looking down on the satellites from outer space, a view looking up at the sky would have East and West reversed: I found the former more intuitive, so I used that. Satellites are initially drawn as blobs with their identifier numbers, dark blue background for those used for the fix, light blue otherwise. I expected to have to do too much programming to replace the underlying grid when the satellite moved, so the first version simply keeps overwriting with the blob, producing a long 'sausage' along the orbit. You can tell the direction the satellites travel because the number is at the last position plotted. Figure 5 shows the result of a five hour recording at home, with a two minute delay between recordings. Figure 8 is the same plot as figure 5 but interrupted part way through to make clearer where the orbits are going. A lot more than eight satellites appear overall, but note that most of them rise or set during the period.

Figure 7 shows the whole screen for some orbit data, with the other windows used by the program: to the right is #dc%, the instantaneous display of some of the data; above this is window #de% used in development for error and other messages, including lines where the checksum test fails;

and below is #dd% which shows the current five sentences from the GPS receiver.

Later I tried a single starting blob with a thinner line drawn from then on, but I don't really like that, figure 8, but I think it too helps to make sense of figure 5. I suppose sprites could solve it, i.e. to get a line always ending in a blob at the satellite's current position, but that comes under CBB (so far) again.

[Figures 5 to 10 were reproduced in QUANTA Magazine Volume 24 Issue 2 - April/May 2007 Pages 5 and 6 and have not been re-inserted here to save space Ed.]

Track over the ground

For the track display as in figure 9, either on the move, or back in the shack from the recorded data, the window represents a map on which the track is drawn, a direct plot of latitude and longitude for each point. I set Minlat, Maxlat, Minlon and Maxlon, taken from an OS map of the area, to define the edges in decimal degrees (S and W are negative), and used the difference between Maxlat and Minlat to set the SCALE. The E-W width of the map is then set by the window definition; the SW corner by (Minlon,Minlat), also in SCALE; and Maxlon is really used only for the limits of the grid of latitude and longitude lines. Since SB does not complain about off-window drawing, and the map is drawn only once, I left it like that. I define the four variables in a number of PROCedures to choose the area and detail I want to see, again using REMarks and ED to select the one I want. More CBB against making this easier. I've removed most of the maps in this version to save space.

Figure 9 shows a trip from Bognor Regis to Petersfield via the A259, the A286 the B2141 and the B2146. If you want to compare it with a real map, it's all on OS Landranger Sheet 197.

To get a plot that would correspond to the OS map I had the same problem as any cartographer representing the Earth's surface on a flat map. The compromise is to adjust the longitude by the cosine of the average latitude, which works well over a small area. Mercator charts (which includes OS maps) use this method hence I call the adjuster Mctr. To be honest I just kept fiddling with it until the plot looked right when compared to the OS map. A 'To Do' is to look into displaying an image of a proper map and drawing the track on it, it should be fairly straightforward if I photograph a map with a digital camera and could convert it to a format that QPC will display. I would

note the latitudes and longitudes of the corners of the map and adjust the SCALE and origin of the GPS display to fit.

A small window shows the instantaneous speed and direction as a line, length proportional to speed, in the current direction, with North at the top. Turtle graphics made this simple to program, but didn't allow the correction for aspect ratio, so it's a slightly distorted picture, but CBB came in handy again.

I've coloured the track, and the small pointer, to show the speed, based on the standard resistor colour code: black= 0 to 10, brown= 10 to 20, red= 20 to 30, orange= 30 to 40, yellow= 40 to 50, green= 50 to 60, blue= 60 to 70, violet= 70 to 80 and then a non-standard shocking pink above 80. I have found that the speed given in the $GPRMC line is sometimes way out, over 70 m.p.h. on a road where I know we didn't exceed 50. That was when we were under a canopy of trees, and the data from around that time is really dodgy. This is something else to look into.

No static, black and white, figure can show the dynamic effect of running the program, with colour, and, believe me, it is much more exciting to watch the real thing: to me, well worth the trouble.

Processing the data

I soon found that the early versions of the program collapsed due to corrupted data from the receiver. However, going through the data as it arrived looking for the corrupted lines became too long-winded, now I read in all the five sentences in one go, so that processing time doesn't mean that some data comes from the next second's lot, Ignoring the whole set of five lines if an error is found is maybe a bit OTT, but CBB ruled here too. As it stands, I catch only every other second's data, and the main display of track data does not always correspond to the raw data shown at the same time, which is a puzzle. Looking into this is another 'To Do'. (Well, since writing that I've looked through the program prior to sending it off, and realise that the answer is that I don't always use the copy of the data -- too late to do it now, so still a 'To Do'.)

DIY

If you want to try this out, you don't, of course, need to do all that I have -- I was exploring into the unknown. There's no need for the Icebreaker and LCD display, no need either for the PPS and ALMRDY, but I love

flashing lights: you could go straight to QPC, but I would keep the op-amp buffer(s), to protect the GPS module; and the MAX232 might be necessary too. A GPS module with a less fiddly interface might be a good idea, unless you're into fine p.c.b. etching.

More To Do

part from the things I've already mentioned, I might change the baud rate to 9600 and get processing done within a second so I can collect all the data. I could try out saving only the necessary data instead of the whole set of sentences, to keep the file sizes down, although studying the details of recorded data has been very instructive.

I've already developed a SB program to make an average of the positions from the five hour data file, it will be interesting to repeat this with the antenna moved a few metres and see if the difference in position can be measured by this method.

here's still the prospect of making a hand held device based on PICs, but that would take it outside the QL area.

I'll report here any interesting developments, and would like to hear from anybody who has any queries, comments, suggestions or corrections, via email: harryweston@beeb.net (it's a long story). Please make it clear in the first few characters of the subject field that it relates to QL matters; I get a lot of spam, and delete anything I don't recognise, without downloading or reading it.

Acknowledgements

I must thank many people: Roy Wood for giving me the opportunity to go on about GPS at Hove, and for providing the projector and improvising a screen; Tony Firshman for helping me with an unfamiliar Laptop computer, and his persistence that got the GPS antenna outside and made a demonstration possible; Geoff Wicks and John Mason for encouraging me to produce this article -- I have enjoyed working on it and learned a lot more about GPS and the QL by having to write it all out. Finally all those others who work so hard to keep the QL community alive, for little profit, but a great deal of benefit to the rest of us.

Quanta Magazine

Figures

[To make these Figures easier to locate, I have added the Volume, Issue and page numbers on which they were printed. Ed.]

[Members have asked for a little more about the theory and mathematics behind this article. We shall be asking Hugh if he will provide this data as a follow-up to this article. In the meantime, I am able to put you in touch with Hugh by email. All queries to:- editor@quanta.org.uk *- Ed]*

I am not going to get into arguments of political correctness over names for those attending a workshop; I would just like to thank all our visitors for coming and making this one of the best attended workshops in recent years and to thank the West Midlands subgroup for all their support.

We have all been aware of the falling attendance at workshops and AGM's. There have been a number of workshops where the total attendance, including traders and Committee members, has been less than twenty. Committee have been trying a number of ideas to increase attendance, such as fewer workshops per year (just two per year), paying a small sum towards speaker's expenses and a more central location (geographically speaking). Have we finally got something right?

There were a total of thirty two visitors (Including traders and committee) who came to Solihull. Visitors came from as far away as Somerset, South and North Wales, Yorkshire, Lancashire and Kent and most points in between (there were no Londoners or Scots, but those in the last category still had a long way to come). Rich Mellor (RWAP Services) and Derek Stewart (D & D - Q60) both came to join Tony Firshman and Roy Wood as Traders, with Dilwyn Jones coming with Launchpad and 'QL on a Stick'. John Southern and his family were working on an A & E table to resuscitate 'black box' QLs to a working condition. Dan Abbott had a 'One per Desk' on display on the Committee table. Jochen Merz was missed, but we are aware that he is unable to attend any UK workshops at the current time. We look forward to his return.

A number of talks had been arranged by Geoff Wicks – Simon Goodwin is always an interesting speaker and his talk on 'Creating a fast modern QDOS system using free software' covered a number of related topics and was attended by seventeen people. Dilwyn spoke on the 'QL on a Stick' and Geoff on 'Mapping Ancient and Modern on the QL', both topics of discussion in recent times. What a pleasant change to see all the talks so well attended, as at some shows the lack of visitors has made the talks meaningless.

Simon Goodwin ran a competition with three questions and a prize of the Linux machine that he had used at the workshop. Question 1 – write your name. There were five entries; all answered the first question correctly as far as Simon could tell. The other questions were a bit more technical!! The winner was Alexia Southern, an associate member of QUANTA. Simon presented her with the machine after he had completed his presentation.

Quanta Magazine

Just as pleasant was to see the small discussion groups forming and reforming during the day as visitors flowed around the workshop. There was lively discussion regarding the 'One per Desk' and the Q60. Derek had not brought one for display, but had a number of enquiries regarding further machines becoming available.

Committee received some enquiries regarding membership of QUANTA and two of our visitors became QUANTA members on the day.

It was agreed by both visitors and traders that the venue was a good one, Solihull has excellent access from the Motorway system, from whichever direction you come (only about a mile from J5 M42). The Holiday Inn itself is well sign-posted as you enter Solihull. The services provided by the Holiday Inn were good, with tea & coffee available to everyone in the workshop itself. Buffet lunch and drinks were available from the bar. The car parking was free for those attending the Workshop. Access into the workshop area was easy, no stairs or awkward corridors, with plenty of chairs and tables available.

Committee would like to thank everyone for coming and we look forward to being able to provide another event in this area in 2009.

PICTURES FROM THE SOLIHULL WORKSHOP

Setting up the "Talks Room"
with (L to R)
Tony Firshman, Simon Goodwin and Geoff Wicks.

Derek Stewart setting up his Q60 Table.

Dilwyn Jones chatting to David Buckley and Dan Abbott (with John Hall on RHS)

(L to R) Richard, Alexia, John and Andrea Southern with John Gilpin giving CPR to a black box QL

Roy Wood and Rich Mellor catching up on all things QL

Simon Goodwin presenting Alexia Southern with the Quiz Prize

SALES AND WANTED   John Gilpin

Wanted:

External disk drive units (or just cases) - single or dual units. There must be plenty out there from people who have upgraded.

For Sale:

      10 - Epson Stylus Colour 850 printers
       2 - Epson Stylus 900 printers
          HP Deskjet 660C Inkjet printers

    All **ONLY** £40.00 each plus £15.00 post and packing

Quanta Magazine

Contact: Rich Mellor, 3, Dale View Court, Fulford, Stoke-on-Trent, Staffordshire. ST11 9BA or by email at:

rich@rwapservices.co.uk

Wanted:

QUANTA are always on the lookout for Second User QL related items which are no longer required by their owner.

Do you know where there is some hardware, Software (original) books etc laying about doing nothing? Give me a call or send me an email.

John Gilpin QUANTA Treasurer. Contact details inside front cover.

For Sale:

QUANTA have the following second user Items for sale:

Reformatted Microdrive Cartridges - 4 in Plastic Wallet - £0.30 (Last few remaining - First Come, First Served)

And

Reformatted 3.5" DD Floppy diskettes - £0.20 ea - 10 for   £1.50
                                                                                          100 for £11.50

Jan Jones' Book "QL SuperBASIC - The Definitive Handbook"

This is the book which no QLer can afford to be without and the one which QUANTA did a Limited Reprint Edition in 1989 after the original print run sold out so quickly.

A Real Bargain at £1.00 each. (Last few remaining)

All the above items are subject to post and packing charges at cost.

Enquiries to treasurer@quanta.org.uk

TRADER'S CORNER

QUANTA recommends the following trading members to supply all your QL requirements, information and advice.

Trader's Advertisements can be viewed at:
http://www.quanta.org.uk/traders

RWAP SOFTWARE

  3, Dale View Court, Fulford, Stoke-on-Trent, Staffordshire. ST11 9BA Tel: +44(0)1782 398143
RWAP Software provide a wide range of software and hardware for the Sinclair QL, Cambridge Z88 and ZX Spectrum computers.

Our Sinclair QL products include a range of all time classics to suit all users:

Adventures West, Return to Eden, Lost Kingdom of Zkul, The Prawn, Horrorday, Nemesis MKII

Games Qword, D-Day MKII, War in the East MKII, Grey Wolf, Open Golf, Stone Raider, Deathstrike, Hoverzone and Flightdeck

Other software
Q_Route - the famous route finder software for the QL. & QL Genealogist and Genealogy for windows.

Business Software Cash Trader, QL Payroll, Flashback SE
                    Image-D, QL Cosmos, ProForma ESC/P2 Drivers and Sideways

Programming Guides SBASIC/SuperBASIC Reference Manual on CD plus Q-Index & Q-Help

Replacement QL Keyboard Membranes

Second User Items probably the widest range of Hardware, Books and Software available anywhere

Plus Lots of similar items for the Cambridge Z88 and ZX Spectrum !!

Visit our Web Sites: RWAP SOFTWARE   RWAP ADVENTURES

QLToday

German Office & Publisher:
Jochen Merz Software,
Kaiser-Wilhelm-Str.302
47169 Duisburg,
Germany

English Office:
QBranch
20, Locks Hill,
Portslade,
BN41 2LB
United Kingdom.

Tel: +49 (0)203 502011
Fax: +49 (0)203 502012

Email: QLToday@J-M-S.com

Tel: +44 (0)1273 386030
Fax: +44 (0)1273 381577
Mobile:+44 7836 745501
Email: qbranch@qbranch.demon.co.uk

Visit our Web Page: http://www.QLToday.com

Quanta Magazine

[I am pleased to publish below some comments received from members regarding a couple of articles in the last issue - Ed]

THE SOUND OF SILENCE (REPLY)   John Roberts

Dear Editor,
 I will make a stab at replying to Geoff Wicks' article.

Long since having ceased to be one of the 30% still lingering with micro-drives, I am probably in the middle 40% who are wandering, neither technically assured nor confined to the simple QL life. But as a member since the start (and now feeling my age) I have tried on occasions to suggest what would be useful to such as myself. But there has been no responses, perhaps because the technical wizards who can do such things are usually taken up with their own plans.

I have always thought that the QL Library was an asset not fully utilised. One reason is that as changes have been enlarging QL capacity, the old games and programs have fallen out of use and are forgotten. Often they need to be adapted for enlarged memory and rewritten to remain useful. Another thing is the difficulty of getting help for problems One example:- I have one Extra High Density disk that refuses to show any of its contents. Asking around at the last QL show produced no one with any idea what might be done, except to consult an Italian website, which I did, without success. So I retreated to my PC., which has its own problems, but also a good deal more possibilities of help.

Keep on trying,

 John Roberts

[Can anyone suggest any solutions to John's problem regarding his ED Disk?

John is not the only member who has made suggestions regarding the QUANTA Software library. We are currently looking for an active librarian with sufficient knowledge and/or enthusiasm to bring the Software Library into the twenty-first century. Can You help? Or do you know a man (or woman) who can (will!!)? Ed]

All (printable!) comments to editor@quanta.org.uk please.

COMMENTS ON STEVE POOLE'S ARTICLES

George Gwilt

INPUT DETAILS

The little program demonstrating what INPUT does, nicely illustrates its capabilities. Steve indicated that the "Beginner's Guide" to the QL did not explain INPUT very well. That is true. However, you might have expected that the next section in the QL User Guide (the official manual) which is QL Keywords would explain matters better. Not so!

The definition of INPUT given in Jan Jones' book seems to me succinct, complete and correct. Here it is:

INPUT [#channel_number separator] { [parameter] separator}

If a parameter is an expression, the INPUT command acts in the same way as PRINT, writing the value of the expression to the channel. Any separators are also treated as they would be by PRINT.

Here [ ] means optional and { } means optional repeated.

It might be useful to know that all the examples given by Steve can be compiled by TURBO and that the results will be the same as for SuperBASIC.

NEXT KEYWORD

The keyword NEXT certainly seems to bother many people, so it useful to have Steve's examples to show what really happens. However, I would like to point out that List 5 will only work with SMSQ/E's SBASIC. SuperBASIC does not allow unnamed repeat loops. Nor does TURBO.

Also although re-entering a completed loop by using NEXT is possible in S*BASIC, this is not allowed by TURBO. Thus List 4 will not compile unless you replace "NEXT loop" in line 440 by "GO TO 390".

Jan Jones tells us that we can EXIT from a completed loop! What happens then is that you jump back to the instruction just after the END REPeat. Again TURBO does not like this but will compile if a GO TO replaces the EXIT.

I am one of those who refuse to have GO TO's in my programs. I therefore was surprised that Steve said that the example in List 3 proved that GO TO's are indispensable to SuperBASIC. And of course I sought an alternative coding. Here it is:

```
330 IF f=5:PRINT;"!":ELSE IF NOT f=9:PRINT;',''!
```

This replaces lines 330 and 340.

I know that I have suggested the use of GO TO to make other examples compilable by TURBO. In these cases, too, if they were my in own program, I would eliminate the GO TO's, probably by the use of a second, outer, repeat loop.

QUANTUM COMPUTING

I read somewhere that quantum computers work better when they are switched off. I suppose this is possible because they think they are in all states simultaneously, including being switched on and off. Being switched off presumably saves electricity though. Or does it?

I hope that this and some other tricky quantum points may be discussed by Steve on a future occasion.

[Steve continues his articles with one entitled "Wiping the Screen" following this article. Does anyone have any comments they would like to add? If so, please send them in to me. Perhaps Steve himself would like to come back regarding the above comments from George? Over to you, Steve. Ed]

WIPING THE SCREEN   Steve Poole

This program is another which I entered for the Cue-Dark screen-saver competition in 2002, and which has never been published.

You will definitely have noticed on TV how images change from one to another via screen 'wipes'. Indeed Dilwyn Jones has produced programs to do just this! This stimulated me enough to write wipes of my own, so I began by experimenting with different effects. Once you have designed an effect you have to peek and poke vertical and horizontal lines into RAM to change from one screen to another. Not for beginners!

But wipes in themselves can be suitable for screen-savers, so I left the program as it is so that new programmers can see how it works. If you change statement 200:3 to over 0 and run, you will see how each wipe overwrites the last block drawn. So set it back to OVER -1, and change 200:2 and 200:3 to OVER -1: Now the 'diagonals' do not appear as they are XORed, which means their colours are inverted. So now set 200:2 back to OVER 0 as it was in the beginning. In general, XORing produces unexpected colour 'mixes'.

Lines 160 & 170 choose line colours and their inverses. (This produces Pseudo-XORing). Note that The QL uses up to 255 stipple-colour combinations. A recent Quanta article shows you how to construct these colours, which are essential with BLOCK. In other QL graphics, colours are better defined using the INK command with 3 parameters, (as these make sense and are easily coded).

The Y FOR-loop counts the number of lines across and down the screen, using the BLOCK command which draws lines considerably faster than LINE.

This program makes quite heavy use of the random number generator. Generally speaking, randomly-selected values produce chaotic output, in other words, a mess on the screen. So take care when you use them to restrict their ranges to well selected limits which enhance your output. This usually means trial and error, and can sometimes be quite time-consuming!

Change the INKEY$(#1,1) on line 270 to INKEY$(#1,0) under QDOS if you want faster output, but don't do this on QPC as the code runs much too fast.

This code should be simple enough for beginners to understand, and allow more experienced programmers to adapt it. As always, the best way to learn is to experiment...

Best Wishes

```
100 ::
110 REMark WIPES_bas. By S.Poole, v.4oct2005
120  CLEAR: OPEN#1,con_16: WINDOW 512,256,0,0
130  BORDER 0: PAPER 0: INK 4: CLS: OVER 0
140  :
150 REPeat loop
```

```
160   c=RND(255): k=c: IF RND(1): k=255-c
170   g=RND(255): q=g: IF RND(1): q=255-g
180   aa=RND(1): bb=RND(1): cc=RND(1): dd=RND(1)
190   IF (aa+bb+cc+dd)=0: GO TO 180
200   IF RND>.3: OVER 0: ELSE OVER -1
210   :
220   FOR y=0 TO 255
230      IF aa: BLOCK 511,  1,    0,    y, k
240      IF bb: BLOCK 511,  1,    0, 255-y, q
250      IF cc: BLOCK 1 , 255,   y*2,    0, c
260      IF dd: BLOCK 1 , 255, 511-y*2,    0, g
270      IF CODE(INKEY$(#1,1))=27: EXIT loop
280   END FOR y
290 END REPeat loop: OVER 0
300 ::
```

End of Listing.

QUANTA NEWS   John Gilpin

D ilwyn Jones has sent us information regarding updates to two of his programmes:-

LAUNCHPAD AND QTRANS UPDATES

Updated versions of Launchpad and QTrans are now available from my website.

Launchpad 2.09 includes a change suggested by Fabrizio Diversi, to allow faster entry of user name and password where more than one user has been set up in Launchpad.

QTrans v2.08 corrects a bug in the RENAME command in QTrans when used on QDOS systems, which caused an object type error when the new filename was entered.

The Launchpad demo version and full QTrans package are available to download from:
www.dilwyn.uk6.net/gen/launchpad/launchpad.html

Just follow links to the downloads page. Registered users of Launchpad can also download the full version of the package, use the previously notified password after downloading.

Quanta Magazine

[The following is a copy of a topic discussed briefly on ql-users list recently. If members have experiences of recent purchases which they would like to share with with other QLers, just drop me a line either by Snail Mail or by email to:- editor@quanta.org.uk

John Butterworth wrote:

The black box QL has big bold characters in the centres of the key tops, just like a typewriter. With a keyboard interface and a PC type keyboard a few extra features are available but the small size of the characters and their placement in the top left hand corner of the key leads me to a large proportion of typo errors and I have often wished to find a keyboard like the QL's. I almost fulfilled this wish with a "Standard keyboard", black, from Tesco for 3 quid. The letters are not much bigger than those on PC keyboards but they are more visible, white on black instead of grey on ivory. It has a PS/2 plug but works fine with an adapter to the 5 pin DIN plug required by my interface. It is certainly an improvement and pleasant to use with either QL or PC. Tomorrow I shall buy another and improve my typing in both.

[It wasn't long before Dilwyn Jones joined the discussion and he subsequently sent this short article on The Tesco Keyboard. Ed]

TESCO VALUE KEYBOARD (VKey01)   Dilwyn Jones

For just £4.47 from a well known supermarket chain this keyboard has to rank as one of the computing buys of the year for me so far.

It's a cheap and cheerful (not forgetting BLACK!) keyboard which works first time with my PC and with my Minis-QL, which has a superHermes Lite keyboard interface I first found out about this little gem when John Butterworth posted a message about it on the QL-Users mailing list. In fact, his message referred to another, even cheaper keyboard on offer at 3 pounds, but since that particular one wasn't in stock at my local Tesco, I opted for this slightly more expensive VKey01 version instead. At the time I was having problems with sticking keys on my Minis-QL keyboard and was looking for a cheap alternative. John didn't specify which QL keyboard interface he used it with, but I guessed that even if it didn't work with the Minis-QL I'd just use the PC keyboard on that, and use this one on the PC instead. I needn't have worried, it worked first time on both computers, so for just a few pounds for a nice black keyboard I couldn't complain. The keyboard is pretty compact, slightly smaller than the previous keyboard I had. It has all the usual keys as long as you don't want the endless extra multimedia keys you get on many modern keyboards. It has the usual Windows menu keys either side of the space bar, plus Power, Sleep and Wake Up keys if your system uses those. The function keys (all 12 of them) are half height keys., leaving room for a biro well right at the top, which is a very nice,

useful finishing touch. It has two swivel legs which fold down flat for storage. The keyboard layout produces all the correct QDOS keys, with the usual suspects of pound, at and hash symbols all reproducing correctly in QDOS and SMSQ/E. The only exception was the Euro currency symbol which is shown on the "4" key for Windows, but in SMSQ/E it is obtained by pressing SHIFT and Ÿ (the grave accent symbol, below ESC on PC keyboards).

The superHermes keyboard clicks work as usual with it, together with the usual combination key features such as Page Up and Page Down corresponding to the QL's SHIFT up and SHIFT down, which is handy for scrolling through text in Quill, for example. The "feel" of the keyboard is very different to the previous one. This one is very noisy when you type, a kind of plastic-sounding key rattle, so would not be too subtle in a quiet environment, and the keys also require a slightly firmer typing action than my previous (rather more expensive) keyboard. It has a tendency to miss the occasional character when typing at speed unless you hit the keys just right (usually affects the R key for some reason) and it happens on both PC and Minis-QL, so it is not a keyboard interface issue. Time will tell if it is my typing or not, since it does have a very different feel to the other keyboards I have - it may well turn out to be just a case of getting used to the feel of the keyboard. It's described as being compatible with Windows 98SE, ME, 2000, XP and Vista and is the usual "plug and play" when used with a PC. It has the usual purple PS/2 connector. It comes with a single page stating that it has a 12 month warranty. It says that the keyboard layout will be relevant to the country in which it is sold, which judging by the languages used on the packaging will be Britain and several East European countries.

In summary, a nice black keyboard which serves its purpose as a cheap and very cheerful keyboard for both a PC and a QL with superHermes Lite. It's not as good as the more expensive keyboard I already have, but don't expect too much for the low price and you won't be too disappointed. It's handy to know that if, as happened to me, you suffer a keyboard failure, you can pop down to your local Tesco store and get a cheap PC keyboard which you know will work with a superHermes interface to quickly get your QL or Aurora up and running again.

"EVERY LITTLE HELPS"   **John Gilpin.**

Following the above stories, it wasn't long before I stood back and examined my Computer desk at home. This is a long desk (11½ feet of it!)on which I have 2 Auroras and my PC set up. Despite the 'Modern' image on first sight, closer examination shows 3 completely different keyboards looking as though they have come from the stash of second user items which I have collected for QUANTA and is currently sitting in boxes precariously balanced

upon one another along the opposite wall. This impression is not too far from the truth as my PC keyboard came from that stash when the original one packed up about six months ago. The Aurora keyboards were, as John Butterworth describes, dirty (very!!) cream coloured and must be about as old as the Auroras. My local Tesco is not big enough to have a Computer section but during my monthly visit to see my Father-in-law, I had to visit his 24 hour Tesco and there they were, in all their glory just as Dilwyn had described them. Taking the plunge, I bought 3 of them at £4.47 each (so these must be the SUPER DELUXE version) and three days later I installed them. The first problem was converting the PS/2 plugs to the DIN Sockets fitted to the Pandora Cases in which the Auroras are fitted. PC World failed to supply these saying, "If it isn't on the shelf over there, then we haven't got any" The "Try Maplins" came as rather an afterthought but that's what I did - on line and they were delivered the following morning - I am referring to the period shortly before the Postal strike! The only problem there was that the adaptors which gave me the necessary extra length of cable to comfortably fit between the keyboards and the Pandoras (which sit on the floor under the desk knee hole) cost £5.99 each - which more than doubled the total price of the alteration. I had a little trouble with one of the Auroras (they are fitted with Diren Keyboard interfaces) but after swapping the keyboards over and determining that it was not the fault of the keyboard, I swapped the Diren interface on the troublesome machine and everything worked as I had hoped. As Dilwyn commented, the Tesco keyboards are a little "clacky"and would be frowned upon if one took them to the local research library I only have the Guinea pig to consider in my den and he doesn't consider me when he sharpens his teeth on the cage bars while I am trying to catch up with the editing of the QUANTA Magazine in the early hours.

All in all, I feel, a very good purchase at the price. I wonder what the £3.00 version is like? Would you like to comment John Butterworth? Or just bring it along to the next Nemqlug Sub Group meeting.

The TESCO VKEY01 Keyboard and its carton
(Photo by courtesy of Dilwyn Jones)

ZOMBIES FOREVER!   Steve Poole

E veryone should know this game:

     1) You are a man   : '*'
     2) Who must harvest all the fruit : 'o'
     3) But Zombies try to grab you   : 'z'

       The man can move twice as fast as the zombies, but the faster you run, the faster they run after you. So relax and take your time, just keep stabbing at the keys! If the zombies bump into each other, one of them is reborn elsewhere on the screen...

       PC keyboard (arrowed) num_pad keys move the man:

                 8
             4 6
                 2

       Change these keys in the 'move_man SElect k'- construct if you want to use other keys. I have written this code especially so that young programmers can easily understand or modify it : As an exercise, try placing obstacles in the way, or as a major project, try drawing a maze to run around in! Otherwise just try compressing the code, which could easily be reduced, albeit at the expense of execution-speed and clarity... Optimisations? Note that collision tests use two nested statements (If x: If y THEN do_it) instead of using (If x AND y: THEN do_it). The execution is twice as fast... Think about it...

       This program took me one long evening to code, but almost as long to tweak the timing, so as to get smooth output. Change the 'rush' for_loop values from 2 (to 3 or more) to cheat and keep ahead!

       I have written these routines using QPC at 2.8+Ghz. So you may well have to change the speed 's'-values, (as mentioned in the listing REMarks), that are found in the appropriate SELect block, to adapt the lapse-rate to your own machine-speed. The routines seem to run OK on my SGC-SMSQ-QL and SGC-QDOS-QL, but I cannot try it on a 128k-QL until Tony Firshman has repaired my beloved beasty.

       You may notice some contrived code : This is because the 'getkey' loop needs to allow the zombies to move, even if no keys have been pressed after a set time-lapse. Such timing is always difficult to program

neatly in Basic on the QL, as it was not designed as a gaming machine. (There is no provision for constant-time delay-rates of less than one frame on any QL, that is, 1/50th of a second, which is much too slow for multiple movements in most games).

As it stands, the game allows you the time to locate the num-pad keys, but if you use a joy-stick, reduce the lapse-rates as necessary.

Astute readers will have noticed my regular use of GOTO's in my programs, when these are generally considered as bad practice. However, in FOR Loops, these are essential to get to the next loop, WITHOUT falling into the trap of an otherwise inevitable unwanted loop-epilogue clause. (See the QL Beginners Guide for an explanation of the functioning of 'NEXT'). Moreover, when 'GOTO' jumps are restricted WITHIN nested structures, they avoid bulky REPeat coding, and as such are easier to comprehend. Finally, 'GOTO 100' is blatantly clear, and avoids spurious behaviour which can occur with 'RUN'.

Otherwise, there should be no problems : So get coding, and, in the meantime, Happy Harvesting!

Best Wishes

```
100 ::
110 REMark Zombies_bas, by S.Poole, v24oct2006
120 REMark for Quanta.
130 :
140 REMark Allow EXEC prog if SMSQ/E used:
150  REMark so use INKEY$(#1) instead of PAUSE(#0)!
160  CLEAR: OPEN#1,con_32: WINDOW 512,256,0,0
170  PAPER 0: INK 6: BORDER 8,1: CSIZE 1,0
180  RANDOMISE DATE
190 :
200 CLS: PRINT'Another Game? (y/n)'
210  i$=INKEY$(#1,-1): IF i$='': GO TO 200
220  IF i$ INSTR 'ynYN': ELSE GO TO 200
230  IF i$ INSTR 'nN': CLS: CSIZE 0,0: STOP
240 :
250 CLS: PRINT'Difficulty? (1 to 9)'
260  i$=INKEY$(#1,-1): IF i$='': GO TO 250
270  IF i$ INSTR '123456789': i=i$: CLS: ELSE GO TO 250
280 :
290 REMark Modify 'Lapse to suit your machine-speed:
```

```
300 REMark These values preset for QPC at 2.8+Ghz:
310  SELect ON i
320    =1,2,3: L=50000: =4,5,6: L=100000: =7,8,9: L=150000
330  END SELect
340 :
350 REMark Note how very few variables are necessary:
360  ac=59: dn=23: nz=i: no=nz: x=1: y=2
370  k=5: n_o=no: wait=99: lapse=L
380  white=7: yellow=6: green=4: red=2
390  DIM z(nz,y), o(no,y), m(1,y)
400 :
410 REMark Draw the man:
420  m(1,x)=RND(0 TO ac): m(1,y)=RND(0 TO dn)
430  AT m(1,y),m(1,x): INK white: PRINT'*'
440 :
450 REMark Draw the zombies:
460 FOR zz=1 TO nz
470    rx=RND(0 TO ac): ry=RND(0 TO dn)
480    REMark Don't put a zombie on a man:
490    IF m(1,x)=rx: IF m(1,y)=ry: GO TO 470
500    :
510    z(zz,x)=rx: z(zz,y)=ry
520    AT z(zz,y),z(zz,x): INK green: PRINT'z'
530 END FOR zz
540 :
550 REMark Draw the fruit:
560 FOR oo=1 TO no
570    rx=RND(0 TO ac): ry=RND(0 TO dn)
580    REMark Don't put fruit on a man:
590    IF m(1,x)=rx: IF m(1,y)=ry: GO TO 570
600    :
610    REMark Don't put fruit on a zombie:
620    IF z(oo,x)=rx: IF z(oo,y)=ry: GO TO 570
630    o(oo,x)=rx: o(oo,y)=ry
640    AT o(oo,y),o(oo,x): INK red: PRINT'o'
650 END FOR oo
660 :
670 REPeat main_game
680    REMark Rush allows you to keep ahead:
690    FOR rush=1 TO 2: move_man
700    move_zombies: show_fruits
710 END REPeat main_game
720 :
730 REMark *********************************************
```

```
740 REMark Only routine definitions follow:
750 :
760 DEFine PROCedure move_man
770 ct=0
780 REPeat getkey
790   key$=INKEY$(#1)
800   REMark Force the QL to allow zombies
810   REMark   to move if no keys pressed
820   REMark      after a counted delay:
830   ct=ct+1: IF ct=lapse: RETurn
840   :
850   REMark Maybe no keys pressed when expected:
860   IF key$=": NEXT getkey
870   IF key$ INSTR'4682': ELSE NEXT getkey
880   :
890   REMark Now erase the man:
900   oldx=m(1,x): oldy=m(1,y)
910   AT m(1,y),m(1,x): PRINT' '
920   :
930   REMark Then move him:
940   REMark Choose keys to suit you:
950   ky=key$: SELect ON ky
960    =2: newy=oldy+(oldy<dn): m(1,y)=newy
970    =4: newx=oldx-(oldx>0) : m(1,x)=newx
980    =6: newx=oldx+(oldx<ac): m(1,x)=newx
990    =8: newy=oldy-(oldy>0) : m(1,y)=newy
1000    =REMAINDER : NEXT getkey
1010   END SELect   : EXIT getkey
1020 END REPeat getkey
1030 :
1040 REMark See if you hit a zombie here:
1050 FOR f=1 TO nz
1060   IF m(1,x)=z(f,x) THEN
1070     IF m(1,y)=z(f,y) THEN
1080       AT m(1,y),m(1,x): INK yellow: PRINT'!'
1090       BEEP 12345,99: PRINT'YOU LOST'
1100       :
1110       REMark Wait until finger is raised:
1120       FOR j=1 TO k: i$=INKEY$(#1,wait)
1130       GO TO 200: REMark (avoid spurious RUN).
1140     END IF
1150   END IF
1160 END FOR f
1170 :
```

```
1180 REMark Now eat any fruit in the way:
1190 FOR f=1 TO no
1200    IF o(f,x)=-1: GO TO 1270
1210    IF m(1,x)=o(f,x) THEN
1220      IF m(1,y)=o(f,y) THEN
1230        REMark negative value if eaten:
1240        o(f,x)=-1: n_o=n_o-1: BEEP 12345,16
1250      END IF
1260    END IF
1270 END FOR f
1280 :
1290 REMark Don't hide the man:
1300 AT m(1,y),m(1,x): INK white: PRINT'*'
1310 :
1320 REMark Is all the fruit eaten:
1330 IF n_o=0 THEN
1340    BEEP 12345,0: INK yellow
1350    PRINT'BRAVO! YOU WON!'
1360    FOR f=1 TO k: i$=INKEY$(#1,wait)
1370    GO TO 200
1380 END IF
1390 END DEFine
1400 :
1410 DEFine PROCedure move_zombies
1420  oldmx=m(1,x): oldmy=m(1,y)
1430 FOR f=1 TO nz
1440    zx=z(f,x): zy=z(f,y)
1450    :
1460    REMark Now home in on the man:
1470    AT zy,zx  : PRINT' '
1480    IF zx<oldmx: zx=zx+1
1490    IF zx>oldmx: zx=zx-1
1500    IF zy<oldmy: zy=zy+1
1510    IF zy>oldmy: zy=zy-1
1520    :
1530    REMark If zombies collide, 1 reborn elsewhere:
1540    REPeat loop
1550      z(f,x)=zx : z(f,y)=zy
1560      :
1570      REMark go through sprites lists:
1580      FOR j=1 TO nz
1590        REMark Don't test oneself:
1600        IF j=f: GO TO 1870
1610        :
```

```
1620        REMark try zombie collision:
1630        IF zx=z(j,x) THEN
1640          IF zy=z(j,y) THEN
1650            zx=RND(0 TO ac): zy=RND(0 TO dn)
1660            NEXT loop
1670          END IF
1680        END IF
1690        :
1700        REMark Try collision with Man:
1710        IF zx=m(1,x) THEN
1720          IF zy=m(1,y) THEN
1730            AT zy,zx: INK yellow: PRINT'!'
1740            BEEP 12345,99: PRINT'YOU LOST'
1750            FOR q=1 TO k: i$=INKEY$(#1,wait)
1760            GO TO 200
1770          END IF
1780        END IF
1790        :
1800        REMark Try collision with fruit
1810        REMark      a trivial case:
1820        IF zx=o(j,x) THEN
1830          IF zy=o(j,y) THEN
1840            AT zy,zx: INK red: PRINT'o'
1850          END IF
1860        END IF
1870      END FOR j : EXIT loop
1880    END REPeat loop
1890    :
1900    AT zy,zx: INK green: PRINT'z'
1910    :
1920    REMark Human collision with zombie? :
1930    IF oldmx=zx THEN
1940      IF oldmy=zy THEN
1950        AT zy,zx: INK yellow: PRINT'!'
1960        BEEP 12345,99: PRINT'YOU LOST'
1970        FOR j=1 TO k: i$=INKEY$(#1,wait)
1980        GO TO 200
1990      END IF
2000    END IF
2010 END FOR f
2020 END DEFine
2030 :
2040 DEFine PROCedure show_fruits
2050  REMark allow for fruit already eaten:
```

```
2060 FOR f=1 TO no
2070    IF o(f,x)=-1: GO TO 2090
2080    AT o(f,y),o(f,x): INK red: PRINT'o'
2090 END FOR f
2100 END DEFine
2110 ::
```

End of listing.

SUBGROUP MEETINGS

THE WEST MIDLANDS QL USER GROUP

This long-running group has moved back to its previous venue, the Queens Head pub in the City Centre. Meetings remain open to Quanta members and non-members alike. The Queens Head is in Steelhouse Lane, Central Birmingham, four minutes walk from Snow Hill main-line railway station and has ample street parking nearby.

Meetings are usually on the first and third Monday of each month (but not on Bank holidays unless the previous one was cancelled for that reason). After your first meeting you're expected to pay £1 each time towards the organisation and monthly newsletter costs - except once a year when the group pays all those who attend a pound instead (We provide food twice a year for those who attend the AGM and the group's birthday party) and at meetings we discuss all sorts of things, QL-related and otherwise, usually from about 8:20pm onwards till 10:30 or later. The group owns QL hardware, a disk library and subscribes to relevant magazines. People can join the mailing list for £3.50 per year, even if they can't attend regularly.

The contact number remains Mike Bedford White's, on 0121 708 2560, anytime after 11 am.

QUANTA DORSET SUBGROUP

Meetings are held, on the second Sunday of each month at the Merley Community Centre in Harrier Drive, Merley, just south of Wimborne Minster. Time: 2.00pm to 5.00pm. All are welcome.

John Meadows Tel: 01202 576189, or John Mason, 01425 275894.

LONDON QL AND QUANTA GROUP

Meetings are held in the School Room, which is the basement of the Borough Welsh Congregational Chapel, 90, Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground Station. Free parking is easily available in Southwark Bridge Road for road users, Cyclists are welcome.

Members currently each pay a subscription of £30 per year towards the cost of the hire of the hall and a small additional charge is made for tea/coffee - biscuits are then provided free.

Please bring your QL equipment if possible, all types welcome, e.g., PC portable running emulators. The Group has some systems stored at the venue for its use. In addition, there are lots of donated second user equipment, books, magazines, etc, available for purchase.

Time: 2.00pm to 6.00pm, on the second Sunday of the month.

No meetings are held in either December - winter break, or August - summer break. Giving 10 meetings a year.

Malcolm Cadman: Tel: 020 8691 5780; email: QL@mcad.demon.co.uk

NEMQLUG - THE NORTH EAST MANCHESTER QL USER GROUP

Meetings are held at 181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway - Was Junction 7 M63 Motorway). Our informal meetings start at 7 p.m. and finish at 11p.m. All welcome.
Meets on the last Thursday of each month (except December).

John/Sarah Gilpin 0161-865 2872 (gilpins@ic24.net)

SCOTTISH QL USERS GROUP

SQLUG meets at George Gwilt's home every second Sunday in the month. Please contact George Gwilt before coming to get the location.

Geogwilt@aol.com

SOLENT SUBGROUP

Meets at Botley Market Hall, all welcome. Park at the back and use side entrance.

1st Saturday of the month from 2.00 pm to 6.00 pm.

Graham Evans, Tel: 023 8040 3350.

SURREY QUANTA SUBGROUP (SQSG)

Venue is St Giles Church Hall, Ashtead. (This is the other side, towards the downs, of the main Epsom - Leatherhead road, up Park Lane which is at the Epsom end of the town).

From 8.00 to 10.30 pm on the last Wednesday of each month, except December.

Ken Bain 01932 347 432 (to midnight), kenb@bcs.org.uk

SUSSEX QL USER GROUP

Currently without a meeting place, anyone interested should contact Keith Mitchell or Roy Wood.

Roy Wood, 01273 386030 or Keith Mitchell, 01903 742263.